Streamlining Prescriptions for Riparian Silvicultural Treatments

Issues and Recommendations:

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Forest Practices Branch

March 31, 2001

FOREST RENEWAL BC

105-03156/

Acknowledgements:

We would like to acknowledge Brian Raymer and Ralph Winter, MoF, Forest Practices Branch for coordinating the project. We would also like to acknowledge the work done by Vince Poulin, Cathy Harris and Bart Simmons in compiling *Riparian Restoration in British Columbia: What's Happening Now, What's Needed for the Future*, the compilation spearheaded this project. Thanks also go to Mike Fidgeon, Renewal Investment Corporation for organizing a useful field tour (thanks also go to tour participant's for their input). A special thanks goes to Colene Wood, MoELP and Reinhard Mueller (Fen Forest Consulting) for their comments and ideas on the process. We would also like to thank Brendan Holden and John Mallett (MoF, Resource Tenures & Engineering Branch) who made this possible through funding provided by Forest Renewal BC.

Streamlining Prescriptions for Riparian Silviculture Treatments: Issues and Recommendations[1]

Issues

1. Why do we need to use SMPs or SPs for riparian prescriptions, why not a riparian plan?
2. To avoid excessive delays and misunderstandings there is a need to standardize administrative review.
3. Riparian silviculture is often very site specific and variable within a relatively small area – not lending itself to current prescription making, mapping, supervision and assessment procedures (i.e. plots and statistics). What should be done?
4. The objectives for treatment within the riparian reserve zones are often not consistent with traditional treatments and measures for timber production (i.e., volume or timber value as measured by the standards outlined within the regulations – i.e., numbers well spaced and free growing.
5. There is an ongoing issue around exempting areas from the obligation of an SMP if under 1 ha.
6. Signing of prescriptions has been identified as an issue where the riparian silviculture specialist is not an RPF.
7. What prescriptions are to be used on stands that do not have basic reforestation objectives but require additional stocking to meet local objectives?
8. What prescriptions are to be used on stands that are not part of a Silviculture Prescription obligation but require brushing or spacing to meet the desired stand structures.
9. What prescriptions are to be used on stands that were disturbed prior to October 1, 1987 but require brushing or spacing to meet the desired stand structures.
10. The area treated is often difficult to establish reliably as it is so variable.
11. There are few trained people both for creating prescriptions and for implementing them.

[1] Many of the issues identified here were raised by Poulin et al, March 2000.

Recommendations

1. **Why do we need to use SMPs or SPs for riparian prescriptions, why not a riparian plan/assessment?**

Use SMPs with revised format.

See wording suggestions for use in SPs.

Riparian prescriptions, like other terrestrial prescriptions, are legally required by the Forest Practices Code Act of BC to follow objectives set out in higher-level plans. SPs and SMPs are legal documents that are in place to ensure treatments are implemented to create a desired condition (i.e., one that fits the standards described in the prescription). Instead of creating a new legislated plan, it is recommended that the SP and SMP be used to create Riparian Prescriptions. To facilitate their use a revised SMP template with examples has been created (see appendix 2) that will help streamline the process and make the SP and SMP more in line with the treatments and objectives for Riparian management, while meeting the legal requirements set out by the Code.

2. **To avoid excessive delays and misunderstandings there is a need to standardize administrative review.**

Plans for work in Riparian Area need to follow local MOUs

Administrative review should follow the SP, SMP regional protocol agreed to by MOF and MOELP – see Vancouver Region Approach (Appendix 1) as an example.

In some districts a set of recommended procedures to meet specified objectives is in place and should be brought to the attention of prescription writers to promote timely approvals). The development of a Silviculture Agreement (SA) is recommended, which summarizes SOPs, information that should be consulted when preparing SMPs, and criteria that specify when referrals are necessary. The SA is developed mutually by MOF, MELP, and licensees.

3. **Riparian silviculture management is often very site specific and variable within a relatively small area – not lending itself to current prescription making, mapping, supervision and assessment procedures (i.e., plots and statistics). What should be done?**

Riparian treatments are site specific and are derived from the structures found within the riparian zone as they relate to the desired condition. The key is to identify opportunities on the ground and describe them in sufficient detail to provide crews with ability to treat accordingly, and to facilitate implementation and effectiveness monitoring. The use of Riparian Vegetation Types (RVTs 1 – 5) as recommended by Koning (1999) to identify opportunities is supported. Additional description of treatable types and the associated treatments is required. Examples are provided with the template.

Mapping

Mapping – use complexes. Keep summary areas to the ha to avoid unnecessary precision.

Mapping will often result in RVT complexes, which is expected in many riparian areas. Where RVTs are small and scattered the intent is not to map every specific RVT, but instead to choose the dominant type and identify those others in the complex. On the ground, crews need to choose treatments that are appropriate to the RVT regardless of the lead map notation. The

approach of recognizing opportunities and choosing the appropriate treatment needs to be clearly described in the prescription and discussed with, crews to allow them to respond to opportunities when they arise.

Within the OPR (part 6 section 48) "special area" is defined as a contiguous area of up to one ha, or 5% of a treatment area, whichever is larger, where the treatments or treatment standards vary from those of the treatment area. Where opportunities for alternative treatments are expected, based on prescription reconnaissance, within a standards unit or all of the standards units, a statement should be included in the SMP indicating that one or more "special areas" will be treated differently when encountered. The specifics of what is to be done to what structure needs to be described. In some cases exact locations may be needed to help relocate areas requiring follow-up treatments. In those cases GPS coordinates may be useful and be added to the file post treatment.

Supervision

Qualified supervision must be provided for implementation until a clearly demonstrated ability to execute the prescription is shown.

Direct supervision and monitoring are keys to success, as noted in Poulin et al. (2000). The level of supervision and monitoring will vary by crew experience and complexity of the prescription. In many cases on-site supervision by the prescription writer or designate will be needed, to transfer intent and point out the various opportunities described in the prescription. Where specific habitat or features are to be retained it is recommended that some form of marking by the prescription maker or their designate be used to ensure the feature or habitat is retained. Where crews are unsure of what treatment to implement, there should be a communication protocol to alert those responsible for the prescription for their input. This should be printed clearly on the treatment map, and discussed with the supervisor and crew.

Plots for assessment

In small treatment areas plots are not the answer.

Using post treatment plots for quality, as per traditional silviculture treatments, will not work in many cases due to the high level of variability in treatment size and intent. Instead, clearly worded desired outcome ranges should be put into the SP or SMP that can be judged in the field. Again direct supervision by a qualified person is the key – post treatment assessment will not remedy a problem.

4. **The objectives for treatment within the riparian reserve zones are often not consistent with traditional treatments and measures for timber production (i.e., volume or timber value as measured by the standards outlined within the regulations – i.e., numbers well spaced and free growing).**

Flexibility and professional judgment are needed to assess compliance – the key is in meeting the objectives.

While timber and habitat objectives differ, the actual treatments are simply modifications of the array of available treatments. For example, spacing may be modified to leave clumps at varying distances rather than single trees, to enhance forage; fertilization may be used to promote shrub growth rather than tree growth; pruning may be used to create additional light rather than to make clear wood.

Desired stocking may follow the guidelines in the regional *Establishment to Free Growing Guidebook*, however, modifications based on sound judgment and science should be prescribed. Guidelines are being created by habitat and

riparian specialists to help create workable solutions (e.g., Chilliwack and QCI District SOPs; Appendix 11 in the Vancouver and Prince Rupert *Establishment to Free Growing Guidebook*). Remember, the site will dictate what is possible – in the prescription use realistic numbers based on what is on site and the objectives for the treatment. In some cases portions of a polygon may go untreated or have slight variations based on local attributes – some flexibility and professional judgment are required for assessment. This is as much an art as a science (Poulin et al 1990).

5. **There is an ongoing issue around exempting areas from the obligation of an SMP if under 1 ha.**

Limit the use of exemptions to isolated treatment areas – otherwise use SPs, SMPs or Treatment Prescriptions where appropriate.

Presently there are a number of options under the Forest Practices Code of British Columbia Act for the District Manager to exempt an area from requiring a prescription (Part 3, Sections 30, 31, 32). Because riparian treatments are often localized and individually may be under 1 ha (e.g., sections 31 and 32) it has been a practice to apply for exemptions for individual treatment units within an area where numerous treatments are planned (with a total area greater than 1 ha).

To avoid costly turnarounds where the exemptions are not granted, and to ensure treatments are linked to objectives in higher-level plans, it is recommended that for all riparian treatment activities, other than isolated single treatment areas under 1 ha, an SMP or SP be used. Where there are two or more areas less than 1 ha in a treatment area, a multi-area SMP should be used.

By having the requirement to complete a SMP or SP, the prescription writer can ensure that sufficient information is collected in the field and the appropriate higher-level plans are consulted. Where Riparian Assessment documents have been created, the prescription writer could "cut and paste" the pertinent sections into the prescription.. This could result in some duplication, but is considered desirable from the perspective of clarity of objectives and treatment options – see redefined SMP template for an example.

6. **Signing of prescriptions has been identified as an issue where the riparian silviculture specialist is not an RPF.**

Where feasible have the licensee sign and seal the prescription.

It is a legislated requirement for SPs and SMPs to be signed and sealed by a Registered Professional Forester (FPC Act Part 3 Div 1 Sec 12 (d) and 13 (c)). It has been pointed out that many of those qualified to undertake riparian prescriptions are not professional foresters (for example they may be other qualified professionals, or teams including fisheries and wildlife, biologists, hydrologists and vegetation management specialists). It is recommended that those licensees undertaking riparian silviculture activities hire the most appropriate people to undertake the work and have a company forester sign and seal the prescription. This will promote the licensee's involvement in the prescription, and help licensee staff to understand the issues, options and results of post treatment monitoring and feedback. The overall objective of the legal requirement will be met, which is to ascribe responsibility and accountability to a registered professional.

7. **What prescriptions are to be used on stands that do not have basic reforestation objectives but require additional stocking to meet local objectives?**

SP needed for multiple treatments to achieve stocking

See Chief Forester Letter

Dated

dd/mm/yy

For all blocks that require multiple treatments, for example: site preparation and planting, or planting and follow-up brushing a SP is required (see Chief Forester letter dated dd/mm/yy, File 22230-08). There is a legal obligation in place to achieve a free growing stand (FPC Sec 23). The standards to achieve free growing need to be expressed in the SP. They are to reflect the conditions needed to meet the local objectives. An example is fill-planting Sx in a salmonberry/cottonwood site, which might entail site preparation, cluster planting and brushing. The objective is for the planted spruce to provide long term inputs of LWD, once the overstory cottonwood falls out. This long-term objective requires ensured establishment, but does not require maximum sustained growth of the Sx once established. Thus free growing could be declared once the trees had met a minimum height and period on site.

Where fill planting is the only treatment required to obtain the desired stocking, no SP is required (FPC Sec 31 (3)). Some examples include: planting cottonwood whips where there is little chance of shrubby competition or fill planting a residual balsam stand with spruce in a low brush hazard site.

8. **What prescriptions are to be used on stands that are not part of a Silviculture Prescription obligation but require brushing or spacing to meet the desired stand structures.**

An SMP or multi-area SMP is a legal requirement prior to treatment. When felling or modification of trees (e.g., girdling) is proposed for a Riparian Reserve Zone (RRZ) the designated environment official (DEO) must approve the actions in writing.

9. **What prescriptions are to be used on stands that were disturbed prior to October 1, 1987 but require brushing or spacing to meet the desired stand structures.**

A treatment prescription may be used where brushing treatments are the only treatment prescribed. An SMP or multi-area SMP is needed for spacing for the purpose of density management. When felling or modification of trees (e.g., girdling) is proposed for a Riparian Reserve Zone (RRZ) the designated environment official (DEO) must approve the treatment in writing. SMPs are recommended for all treatments that modify trees, in order to trigger the required referrals (e.g., girdling alder for conifer release – while technically considered "brushing" and would not require an SMP for pre 87 areas, it does require DEO approval).

10. **The area to be treated is often difficult to establish reliably prior to treatment, as it is so variable.**

Ha level of precision

Due to the variable and non-contiguous nature of treatments within the riparian area, the exact size of the area being treated is not required. Estimated area by RVT to the nearest hectare is recommended. This fits within the direction of the Act and Regulations.

Use teams and promote adaptive management monitoring.

11. There are few trained people both for creating prescriptions and for implementing them.

Because of the lack of trained personnel, it is recommended that teams be used to create prescriptions where possible. Licensees are encouraged to collaborate and determine broad district or regional needs for prescription development. Ongoing training and adaptive management monitoring are needed to improve prescriptions and implementation success.

References:

Koning, W. (editor). 1999. Riparian assessment and prescription procedures. BC Ministry of Environment, Lands and Parks Watershed Restoration Program, Vancouver, BC. Watershed Restoration Tech. Circ. No. 6. 77 pp.

Poulin, V.A, C. Harris and B. Simmons. 2000. Riparian Restoration in British Columbia: What's Happening Now, What's Needed for the Future. Unpublished document for Watershed Restoration Program Coordinator, MOF, Victoria, BC. 81 pp.

Questions and answers

Q What if more trees are left either untreated (e.g., not girdled or not cut) in an area than the SMP calls for? (i.e., beyond the variability provided in the prescription).

A Where this form of diversion from the prescription occurs the crew representative needs to contact the prescription writer to determine what action is suitable. For example the treatment in a specific SU is meant to reduce overstory competition for understory conifers (RVT3), but there are no conifers for 50 m in the areas designated for treatment.

First of all this scenario should have been described in the SMP indicating the potential for this to occur and what to do when it does, e.g., leave all deciduous where no suitable crop trees are found or girdle 3 out of every four alder to enhance alder growth and increase understory shrub growth or whatever.

Where guidance was unavailable in the prescription the SMP writer would provide their recommendations that would be placed on file with the SMP.

Q What if more trees are to be treated (e.g., girdled or cut) in an area than the SMP calls for? (i.e., beyond the variability provided in the prescription).

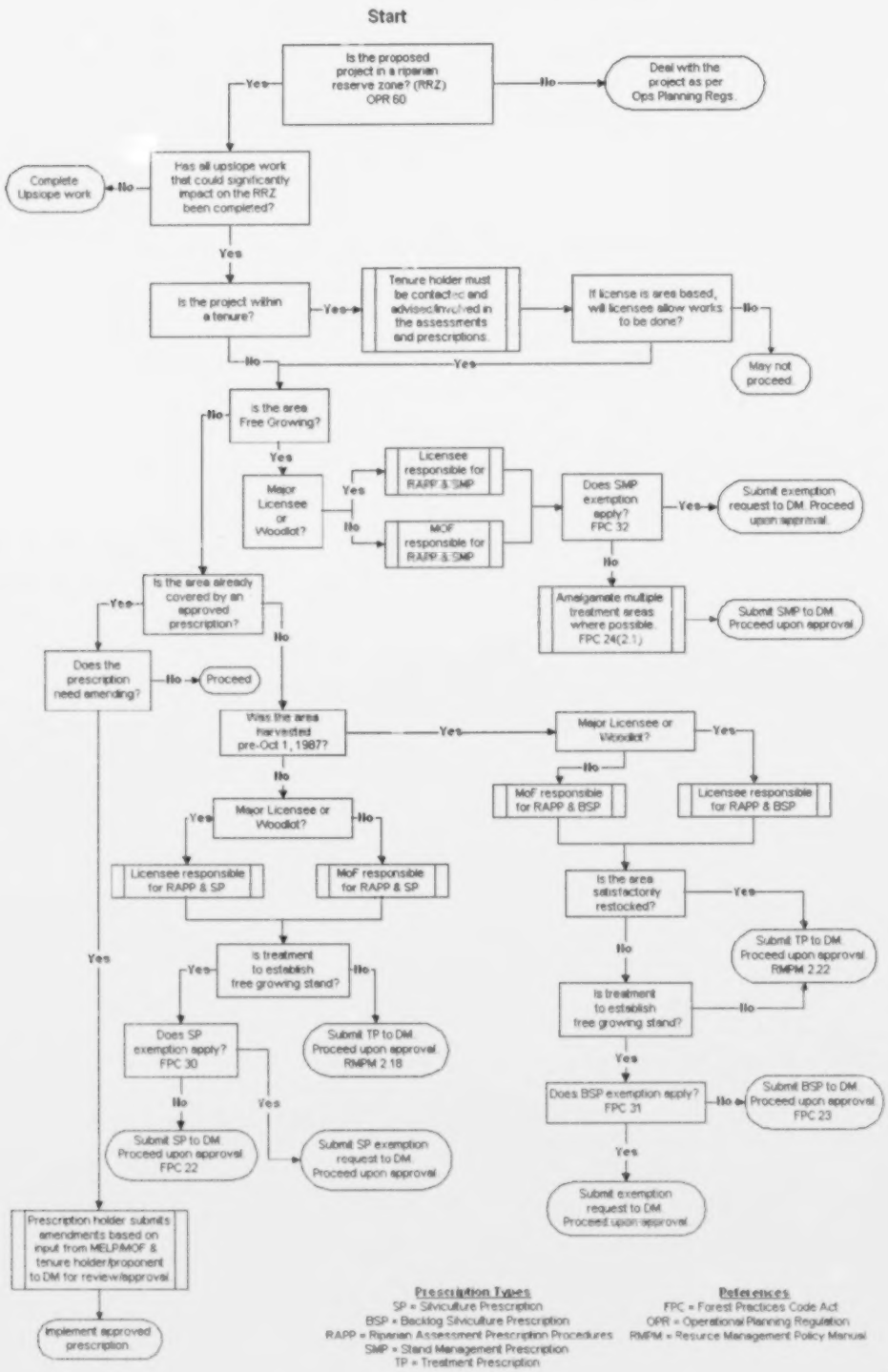
A An amendment to the SMP would be required including a rationale for the change. This should not occur where adequate flexibility is built into the prescription.

Q When I am planning on implementing different treatments what referral process should I follow?

A See Vancouver Region MOU for guidance (next page)

Appendix 1. Vancouver Region MOU Approval Process

Riparian Reserve Zone Restoration Flow Chart


Start
Is the proposed project in a riparian reserve zone? (RRZ) OPR 60
Yes
No
Deal with the project as per Ops Planning Regs.
Has all upslope work that could significantly impact on the RRZ been completed?
No
Complete Upslope work
Yes
Is the project within a tenure?
Yes
Tenure holder must be contacted and advised/involved in the assessments and prescriptions.
If license is area based, will licensee allow works to be done?
No
May not proceed.
Yes
No
Is the area Free Growing?
Yes
Major Licensee or Woodlot?
Yes
Licensee responsible for RAPP & SMP
No
MoF responsible for RAPP & SMP
Does SMP exemption apply? FPC 32
Yes
Submit exemption request to DM. Proceed upon approval.
No
Amalgamate multiple treatment areas where possible. FPC 24(2.1)
Submit SMP to DM. Proceed upon approval.
Is the area already covered by an approved prescription?
Yes
No
Does the prescription need amending?
No
Proceed
Was the area harvested pre-Oct 1, 1987?
Yes
Major Licensee or Woodlot?
Yes
No
MoF responsible for RAPP & BSP
Licensee responsible for RAPP & BSP
No
Major Licensee or Woodlot?
Yes
No
Licensee responsible for RAPP & SP
MoF responsible for RAPP & SP
Is the area satisfactorily restocked?
Yes
Submit TP to DM. Proceed upon approval. RMPM 2.22
No
Is treatment to establish free growing stand?
No
Yes
Is treatment to establish free growing stand?
Yes
No
Does SP exemption apply? FPC 30
Submit TP to DM. Proceed upon approval. RMPM 2.18
No
Yes
Submit SP to DM. Proceed upon approval. FPC 22
Submit SP exemption request to DM. Proceed upon approval.
Does BSP exemption apply? FPC 31
No
Submit BSP to DM. Proceed upon approval. FPC 23
Yes
Submit exemption request to DM. Proceed upon approval.
Yes
Prescription holder submits amendments based on input from MELP/MOF & tenure holder/proponent to DM for review/approval.
Implement approved prescription.
Prescription Types
SP = Silviculture Prescription
BSP = Backlog Silviculture Prescription
RAPP = Riparian Assessment Prescription Procedures
SMP = Stand Management Prescription
TP = Treatment Prescription
References
FPC = Forest Practices Code Act
OPR = Operational Planning Regulation
RMPM = Resource Management Policy Manual

Appendix 2 – SMP Riparian Format

SMP – RIPARIAN FORMAT

A. LOCATION AND GENERAL DESCRIPTION OF AREA

SU	TREATMENT AREA (TA) IDENTIFIER (General Location, Licensee, Stream Reaches, Other – e.g., GPS coordinates., photo number)	TA #	TREATMENT AREA (Net) (to the nearest 1 or 0.1 ha)
Total			

B. MANAGEMENT OBJECTIVES

B-1. HIGHER LEVEL PLANS

ARE ANY OF THE TREATMENT AREAS SUBJECT TO A HIGHER LEVEL PLAN? ( ) YES ( ) NO

	PLAN NAME	*Year*	*Month*	*Day*
IF YES:				
IF NO:				

B-2. STAND-LEVEL OBJECTIVES

ARE CURRENT STAND-LEVEL OBJECTIVES AVAILABLE FROM SILVICULTURE PRESCRIPTIONS? ( ) Yes ( ) No IF 'YES,' SEE ATTACHED FS 711A.

ARE CURRENT STAND-LEVEL OBJECTIVES STILL APPROPRIATE FOR THESE SUs? ( ) Yes ( ) No

USE THIS SECTION TO SUMMARIZE OBJECTIVES FROM HIGHER LEVEL PLANS AND TO CLEARLY STATE STAND-LEVEL OBJECTIVES BY CATEGORY

TIMBER MANAGEMENT OBJECTIVES	

THESE OBJECTIVES APPLY TO: SU (s)_____

WILDLIFE MANAGEMENT OBJECTIVES – HABITAT/BIODIVERSITY/WILDLIFE TREES	

THESE OBJECTIVES APPLY TO: SU (s)_____

Note. Sections in italics are not required by legislation.

STAND MANAGEMENT PRESCRIPTION -- RIPARIAN All Districts Date: Month/Day/2001

WATERSHED MANAGEMENT OBJECTIVES	
THESE OBJECTIVES APPLY TO: SU (s)_____	

FISHERIES/STREAMS – WETLAND MANAGEMENT OBJECTIVES	
THESE OBJECTIVES APPLY TO: SU (s)_____	

RANGE MANAGEMENT OBJECTIVES	CATTLE USE? ( ) Yes ( ) No	*IF 'YES' RANGE UNIT PASTURE:*
CATTLE PRIMARY ACCESS TRAILS? ( ) Yes ( ) No	IF 'YES' LOCATE ON ATTACHED MAP	*SEEDED? ( ) Yes (Year) ( ) No*
THESE OBJECTIVES APPLY TO: SU (s)_____		

VISUAL LANDSCAPE MANAGEMENT OBJECTIVES (VQO)	*LANDSCAPE SENSITIVITY*	*VISUAL QUALITY OBJECTIVE*
THESE OBJECTIVES APPLY TO: SU (s)_____		

RECREATION MANAGEMENT OBJECTIVES	*FEATURE SIGNIFICANCE*
KEY FEATURE	*MANAGEMENT CLASS*
THESE OBJECTIVES APPLY TO: SU (s)_____	

OTHER RESOURCE VALUES/INTERESTS - MANAGEMENT OBJECTIVES	
THESE OBJECTIVES APPLY TO: SU (s)_____	

TREATMENT AREA (TA) DESCRIPTION For SU

Within any standards unit there can be multiple geographically distinct treatment areas (TA).

TA #	TA area (ha)	Area location – description -
TA #	TA area (ha)	Area location – description -

C-1. AREA DESCRIPTION

ZONE, SUBZONE, VARIANT	SITE SERIES (RANGE)	MOIST/NUTR. GRID - range

ELEVATION			*ASPECT*	*SLOPE DATA*			*SLOPE*		
Min:	*Max:*	*Avg.:*		*Min. %:*	*Max. %:*	*Avg. %:*	*POSITION*	*LENGTH*	*UNIFORMITY*

HUMUS FORM	*ROOTING DEPTH*	*SOIL DEPTH TO RESTRICTING LAYER*	*SOIL TEXTURE*	*SOIL COARSE FRAGMENT*	*DRAINAGE*

WATER COURSES		MECHANIZED STAND TENDING	IF YES, SEE OPERATIONAL PLANNING REGULATION FOR FURTHER CONTENT REQUIREMENTS
Water	*Gullies*	( ) Yes ( ) No	

C-2. CURRENT STAND DESCRIPTION – use table and/or describe in words

TA	Layer	Spp	%	Spp	%	Spp	%	Spp	%	Age (yrs)	Height (m)	Ref yr	Density sph	Well spaced	BA m^2/ha

Site Index -

Stand Description in words – describe variability.

C-3. FOREST HEALTH AND PROTECTION

FOREST HEALTH — **AGENT OCCURRENCE**

SU	AGENT CODE	AGENT NAME	HOST SPECIES	TOTAL TREES AFFECTED (%)	TOTAL CONIFERS AFFECTED (%)	HOST TREES AFFECTED (%)	AREA (ha)

FOREST HEALTH STRATEGIES:

PROTECTION

FIRE HAZARD ASSESSMENT & PROTECTION STRATEGIES:

D. TREATMENTS TO ACHIEVE TARGET STAND CONDITIONS AND OBJECTIVES

STAND TREATMENT REGIME –

D-1. POST-TREATMENT STANDARDS

Use the table below to enter the schedule of stand-level treatments and appropriate standards - add rows if needed

Treatment and timing	Attributes of what is to be treated (spp, ht, age)	Area (est) ha	Standards – Stand Structural Attributes – use columns and space below.				
			Pref Spp	Acc Spp	Target	Min	BA

TREATMENT STANDARDS – Additional Detail :

Treatment and timing:

What you are treating and what you are leaving:

Standards and assessment methodology:

D-2. SPECIAL AREAS - (TREATMENT PROPOSED)

TREATMENT AREA #		TYPE OF SPECIAL AREA (predominantly N/A – the entire SMP is for a special area if it is for a Riparian Management Zone)
AREA NO.	SIZE ha	Description of special area and significant features (Show approximate location on map)

D-3. RESERVE AREAS – (NO TREATMENT PROPOSED)

TREATMENT AREA #		TYPE OF RESERVE AREA (e.g., Streamside no treatment areas, no work zones around snags, no work areas near water intakes…)
AREA NO.	SIZE ha	Description of reserve area (Show approximate location on map)

E-3. ADMINISTRATION	
PRESCRIPTION PREPARED BY	
	(RPF SIGNATURE AND SEAL):
NAME *(Printed)* *Date of field work:*	NAME *(Printed)* RPF SIGNATURE DATE: _____ RPF NO.:_____
PRESCRIPTION ATTACHMENTS:	**MAJOR LICENSEE SIGNING AUTHORITY:**
❑ ADDITIONAL SMP COMMENTS ❑ SMP MAP(S)	
❑ FIELD DATA CARDS ❑ TERRAIN STABILITY FIELD ASSESSMENT ❑ FOREST HEALTH/PEST INCIDENCE ASSESSMENT ❑ ECONOMIC ANALYSIS ❑ RIPARIAN ASSESSMENT ❑ OTHER: SPECIFY: _____	Licence Holder Signing Authority Signature *(delete if not applicable)* Licence Holder Signing Authority Name (Printed) *(delete if not applicable)* Date
	PRESCRIPTION APPROVED BY:
	District Manager's Signature District Manager's Name (Printed) Date :_ *Original approval date (if amended):*_____